

Performance of Forest Groups in Achieving Multifunctional Forestry in Flanders

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The forest group is a new policy instrument in Flanders (northern Belgium) to realise multifunctional forest management. This group was introduced in 1995 and organises the various kinds of forest owners, private as well as public, on a local basis (mean working area 751 km²), with voluntary participation (as in all forest owner organisations). This study evaluates forest groups in Flanders through an analysis of their relevance, effectiveness, utility and implementation. The targets of forest groups are relevant to the evolving needs and priorities at the local, regional, national and international level. The effectiveness analysis reveals that most indicators – including the quantity of timber harvest, the number of members, the forest area with an accepted management plan, the area under management and the area with small-scale ecological measures – have been improving between 1995 and 2004. The utility analysis emphasises that the owners are motivated because the forest group provides information and increases knowledge, includes the owner into a collective management plan, offers a platform for sharing management experiences and acts as a union force against the government. However, the forest group is not the solution to introduce multifunctional forest management by all forest owners. The implementation analysis identifies a number of impeding factors, including the imbalance between rights and duties, inconsistencies between various policy aims, and failure of forest groups to act as a common forum for all stakeholders in their working area.

Keywords: policy evaluation, effectiveness analysis, NIPF owners, hyper-fragmentation, landholder motives

INTRODUCTION

European and North American governments face high public demands for forest resources and services. In particular, officials in densely populated regions – e.g.

Flanders, Randstad (the Netherlands) and Île de France – are confronted with increasing demands for recreation as well as biodiversity (Konijnendijk 1999). Due to the shortage of land space in these regions, afforestation can only partly satisfy the increasing demands. Multifunctional management of existing forests appears to be the most practical and operational means of extending forest services. However, since European as well as US non-industrial private forest (NIPF) owners control more than half of the forest area globally (Zanatta *et al.* 2000, Sampson and De Coster 2000), the promotion of such a form of management depends strongly on the cooperation of NIPF owners.

To encourage NIPF owners to adopt the government policy of multifunctional forest management, policy-makers have used a wide range of regulatory, economic and informational instruments (Vedung 1998). The NIPF owners tended not to support these instruments because the underlying ideas conflicted with their opinions, e.g. adjacent owners were not involved, harvest rights were not protected and there was too much interference from the federal government (Brunson *et al.* 1996). Not only did forest owners show an increasing distrust for the traditional representatives of the political system (as observed by Hiedenapää 2002), but also in general citizens harbour a distrust for the institutional framework of politics (Soneryd and Weldon 2003). Furthermore, landowners indicated that in order to encourage woodland management they prefer educational support to governmental cost-share programs (Jones *et al.* 1995, Barden *et al.* 1996). Arrangements intended to encourage citizens to adopt government policies must encourage more participatory forms of public involvement in decision-making (Soneryd and Weldon 2003). According to FAO/ECE/ILO (2000) the acceptance of forest policies, plans and operations is enhanced when people have the opportunity to take part in decision-making and handling of forest-related issues. The low level of support received by some of the traditional policy instruments from NIPF owners indicates that more successful instruments should:

- inform and educate the forest owner,
- allow wood trade,
- involve the owners of the adjacent forest estates, and
- be independent of regional (e.g. Flanders), federal (e.g. Belgium) and European governments (Brunson *et al.* 1996).

Forest groups (forest cooperatives, forest owner associations or cooperative forest management arrangements) exhibit these characteristics. Kittredge (2005) reported the existence of forest groups in Austria, Australia, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Japan, Lithuania, the Netherlands, New Zealand, Norway, Slovenia, South Korea, Sweden, Switzerland, the UK and the USA. Forest groups also exist in Portugal (Mendes 1998).

Forest groups have recently received a great deal of attention for program implementation (Washburn 1996, Rickenback *et al.* 1998, Kittredge 2005), and have been used successfully for a wide scope of forest products and services. Economic advantages, listed by Kittredge (2005), include: the ability to share equipment, contractors and professional services, and to purchase supplies in bulk; the ability to undertake joint marketing of wood; greater access to financial assistance, with lower transaction costs for grants; a reduction in the cost for road construction and

maintenance; and the ability to pool insurance. Other economic advantages are the promotion of wood trade (Bolen 1996, Velema 1996) and the reduction of the cost for certification of wood products (FSC) (Barten *et al.* 2001). Ecological advantages include habitat planning (Kittredge 2005), the promotion of ecosystem management or close-to-nature forest management (Tyson *et al.* 1998, Van Gossum *et al.* 2005), the protection of endangered species (Williams and Ellefson 1997), and the preservation of groundwater, watersheds and wetlands (Williams and Ellefson 1997). A social advantage is the better public accessibility of private forests through improved recreational planning (Kittredge 2005). Advantages for forest protection are improved fire protection, and detection and decreased avalanche risk in mountainous regions such as in Switzerland and Japan (Kittredge 2005). Other advantages are improved motivation and organisation of afforestation and reforestation efforts, physical consolidation of small parcels to create effective management units in fragmented landscapes (Kittredge 2005), sharing of knowledge and experience (Van Gossum *et al.* 2005), distribution of information and education for private owners (Barden *et al.* 1996) and support from the forest group or association in case of vast storm felling or other natural disasters. However, not all reported evaluations of forest groups present positive findings. For example Stevens *et al.* (1999) and Erickson *et al.* (2002) found that owners have a lower interest to join cooperative management programs than independent management programs. Klosowski *et al.* (2001) found that the likelihood of adoption (actually enrolling) of coordinated management plans remained low, even when substantial incentives were offered. Nevertheless, the adoption of coordinated management plans was positively related to an increasing involvement with forestry-related organisations and programs (Klosowski *et al.* 2001). From reviewing the literature, it would appear that, on balance, forest groups that are organised in accordance with the interests and wishes of the private and public forest owners have a high potential to stimulate multifunctional forest management.

This study evaluates the suitability of forest groups as a policy instrument in Flanders, a densely populated and poorly forested region in Belgium, for the period 1995 to 2004. After an introduction to the Flemish forest group program, the theoretical framework and the evaluation methods used are presented. This is followed by the results and the discussion of the analyses of relevance, effectiveness, utility and implementation of the forest group program. Finally some conclusions are drawn.

THE FLEMISH FOREST GROUP PROGRAM

In 1994 the provincial administration of Antwerp commenced a project in the central Campine region to improve local forest management. Two triggers initiated this project. The most important was the hyper-fragmentation of forestland, with most forest owners having a forest area of less than 1 ha. The other trigger was that policy-makers saw the project as a means to improve relations with forest owners, and to make bilateral communication possible. For the realisation of the project the Province of Antwerp, with financial support of the Flemish regional government, provided a full-time coordinator and a work crew. In 1996 the first collective wood sale was successfully organised. A second project was commenced in 1997. In 1999

a legal basis (for recognition and funding) for forest groups and their targets was created. The main target of the Flemish forest group program is to bring about higher quality coherent forest management. A forest group organises all kinds of forest owners (private as well as public owners) on a local basis, and participation is voluntary. Each forest owner retains the right to decide which services they request from the forest group, and remains fully responsible for management of the forest. All forest groups have a full-time coordinator. All have half-time employees for administrative work and sometimes a work crew for forest management tasks. The forest groups are totally financed by the Flemish and local governments and the government intends to continue this financing in the future. One of the reasons for this policy strategy is to compensate the forest groups for the high burden of recent decrees. The increase in legal restrictions and complexity lead many private forest owners to distrust the government. One of the primary tasks of the forest group is to solve this problem. This is also the reason why forest owners do not have to pay a contribution and not all forest owners are members of the forest group. The rights of the forest group members are diverse; they are voting members in the general assembly, they can become a member of the Board of Directors after election and they can participate in joint forest management plans and joint wood sales. There are no duties for forest group members. Members are recruited by a double strategy:

1. Area-oriented and systematic: all forest owners of a specific area are personally invited to an information meeting of the forest group. In practice 10 to 30% of the owners become a member after the first meeting, this increases to up to 70% after a three year later recurrence.
2. On request of the forest owner: the public profile of the forest group was raised through articles in newspapers, advertising on television, and in a roundabout way, the forest group magazine, the Forest Service and municipalities, and also by word-of-mouth.

The status of the forest groups is changing and in the next few years will grow from *initiating projects* to independent associations without pursuit of profit. This is connected with their official recognition. The greatest changes are the improved involvement of private and public forest owners (including membership of the Board of Directors) and greater legal security of financing. At present, seven forest groups with the status of independent associations are recognised by the Flemish government. In 2003 an implementing order of the Flemish forest decree on assuring forest group recognition and financing became operative. This order describes the conditions for provisional and final recognition of forest groups, the different grants for which a forest group is eligible and the sphere of action of each planned forest group, initiating project or independent association (Figure 1). There are four types of grants for a forest group: basic grants, management grants, project grants and education grants. The basic grant amounts to €100,000 and provides the forest group with the means to engage a full-time coordinator and a half-time employee for administrative work. The management grant stimulates the forest group to recruit members actively and to promote close-to-nature forest management. For each hectare of forest managed by a member, the forest group receives €5, plus an additional €5 when this hectare is managed according to the close-to-nature rules. The forest group can also receive project grants for uneconomic forest management

practices including pest control of *Prunus serotina* (an aggressive exotic species), for improving the recreational infrastructure, and for the first non-commercial thinning. Finally, the education grant amounts to €240 for each full day of education and €140 for each half day. A forest group can be subsidised for a maximum of 25 full education days for forest group members, 40 days for the work crew and 15 days for the forest group coordinator.

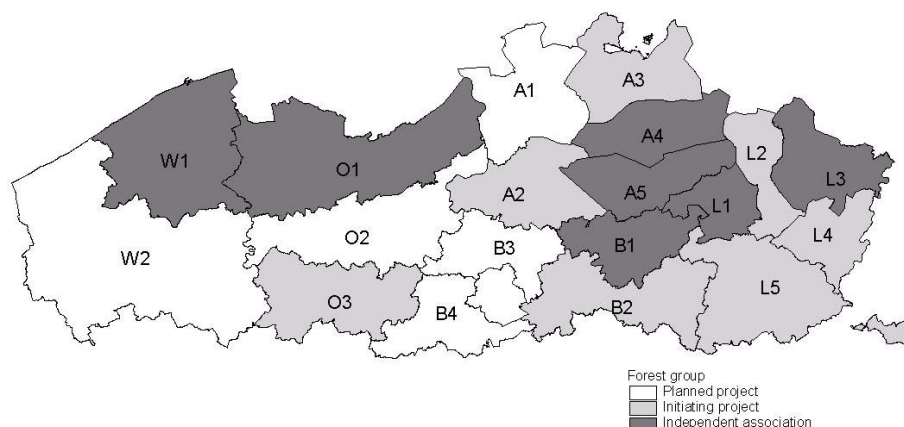


Figure 1. The independent associations without pursuit of profit, the initiating projects and the planned (A2, O2, W2, B3 and B4) forest groups in Flanders

THEORETICAL FRAMEWORK FOR PROGRAM EVALUATION

The evaluation of public expenditure programs typically addresses one or more of the following issues: relevance, efficiency, effectiveness, utility and sustainability (Kaczmarek and Ottitsch 2004). Relevance is concerned with an assessment of the extent to which the program's objectives are pertinent in relation to the evolving needs and priorities at the local, regional, national and international levels. Efficiency deals with the question of how economically the various inputs are converted into outputs. Effectiveness examines how much the program's impact contributes to achieving its specific and general objectives. Utility focuses on how the program's impact compares with the needs of the target population, while sustainability examines the extent to which the positive changes can be expected to continue after the program has been terminated (EU-DG Budget 1997, Kaczmarek and Ottitsch 2004). The project in this study focused on the relevance, effectiveness and utility issues. An implementation analysis is particularly useful for explaining possible failure or success of the forest group funding program.

RESEARCH METHOD

Evaluation Methods: Effectiveness Analysis

This analysis adopts the guidelines of the effectiveness analysis of the 'Evaluating Financing of Forestry in Europe' project, which is described by Kaliszewski and Zyrina (2003). In this project the following steps were taken:

1. Identification of the social, ecological and economic effects of the policy program.
2. Identification of program objectives: The objectives need to be derived from legal acts, decrees and regulations concerning a program, and include both official (stated explicit) and hidden (implicit) objectives. In cases, where objectives are not clearly stated or are absent, the general goals may be transformed into verifiable objectives (Nagarajan and Vanheukelen 1997).
3. Classification of the effects as (1) expected (stated as part of programme objective) and (2) unforeseen: Effectiveness is concerned with one aspect of program impact – expected positive effects – and only those effects should be taken into consideration within the effectiveness analysis. Nevertheless, a program may also have unforeseen (unexpected) positive effects as well as negative effects (both expected and unforeseen). These are not formally included in the effectiveness analysis, but they may be considered in evaluation of the total impact of a program (EU-DG Agriculture 1999).
4. Description and quantification of the effects.
5. Evaluation questions: Once program objectives are identified, the particular evaluation questions are developed. Specific questions and criteria for forestry programs, and indicators relating to them, were presented by the Directorate General for Agriculture (EU-DG Agriculture 1999, Chapter 8). They are based on the Pan-European criteria and indicators of the Ministerial Conference on the Protection of Forests in Europe (MCPFE 1998).

Evaluation Methods: Utility Analysis

The utility analysis studies the owners' motivation for participating or not participating in a forest group-funding program. Between 1999 and 2000, 404 private Flemish forest owners were individually interviewed. The target population included all Flemish forest owners. Before this inquiry there were no data available on private forest owners, thus it is not possible to comment on the owners who were not interviewed. The population of forest owners was proportionally stratified according to forest size and province in order to reduce the effect of forest index differences between the Flemish provinces. The allocation of the stratification was proportional by forest index for the provinces and optimised for forest size (over-representation of the forest owners with large properties) by which it was possible to carry out a statistical analysis (Kruskal Wallis test, Mann Whitney test) for the three forest size classes. The individual owner interviews were used to document attitudes towards forest groups and to predict the potential of forest groups to redirect the management practices of forest owners towards close-to-nature management. Questions were also included about the owners' socio-demographic characteristics,

opinion on current forest policy, forest characteristics, motivation for forest ownership and manner of forest acquisition.

Training was provided for interviewers prior to the survey. All completed questionnaires were checked for missing data and irregularities. Eventually, these were reported to the interviewer and whenever necessary the owner was contacted again to obtain the missing information.

The differences between the socio-demographic characteristics, motivations and attitudes of the two forest owners' subgroups (participated or have interest to participate in a forest group, and had reservations about participating or were uninterested) were tested for significance using the Mann Whitney test¹.

Evaluation Methods: Implementation Analysis

The implementation analysis, or the analysis of non-market failures, was designed to gain an understanding of how and why the implementation failures occur from both a positive² and a normative³ point of view. The implementation analysis followed the guidelines devised by Mendes (2004), who developed a checklist of questions for analysing the program targets, instruments and outcomes. Answers to questions in these areas can highlight some implementation gaps. Other points of interest are the target-instrument controllability, target-instrument matching and complementarities among policy instruments. Information sources included legislation, parliamentary questions and regional articles. As well responses were analysed qualitatively for questionnaires sent to persons involved in the program, specifically the Forest and Green Area Division (one person, who is responsible for the forest group program) and to agents for program implementation (forest group co-ordinators – two persons with at least three years of experience in the program).

RESULTS OF THE FOREST GROUP EVALUATION

The Public Relevance of the Forest Group Program Targets

The official objectives of the forest group funding program are: (1) to improve cooperation (i.e. common wood-selling, common management plans, accessibility plans and common management actions) between private forest owners, (2) to involve private forest owners in forest management and production, (3) to improve recreational use of the forest, (4) to improve the organisation of work, including well-being and job opportunities for semi-skilled and unskilled workers, (5) to enhance public participation in forest management, and (6) to improve forest quality by promoting close-to-nature forest management. These objectives are also emphasised in the Forest Declaration (United Nations 1992), in the Ministerial

¹ The Mann Whitney test is the non-parametric equivalent of the independent sample t-test; for more information on this test is provided in Rosner (2000).

² A positive-oriented approach to policy implementation examines the possibility of failures of policies, namely those arising from the fact that policy-making and implementation are distributed among a great number of decision-makers, public and private, with asymmetric information.

³ A normatively oriented approach to policy implementation analysis assesses market failure cases for policy intervention and internal consistency of policies and programs regarding the nature and number of objectives and nature and number of instruments.

Conferences on Protection on Forest in Europe (Strasbourg, Helsinki, Lisbon, Vienna) (MCPFE 2005), and in the New Flemish Forest Decree. Thus the objectives of the forest group funding program correspond with the evolving needs and priorities at the regional, national and international level.

Effectiveness Analysis: the Quantification of Indicators

The analytical agenda of evaluation questions with criteria and indicators is presented in Table 1. Four criteria are divided into a total of nine indicators.

Table 1. The analytical agenda for evaluating the effectiveness of the forest group program

Criteria	Indicators
Improved cooperation between private forest owners	Number of forest group members
	Total area of forests in the forest group (ha)
More management of forests and higher production	Wood sales (m ³)
	Number or area of (joint) forest management plans
	Total area of forests in the forest group (ha)
Increased area where forest recreation is possible	Fraction of accessible forests in the forest group (%)
Increase of the ecological value of forest through the influence of the forest group	Area of forest with FSC/ PEFC label (ha)
	Area with a management plan 'criteria sustainable forest management' (ha)
	Area where small-scale measures for ecological reasons are adopted (ha)

Cooperation between forest owners

Owners, who are members of the forest group, are mostly involved in one or more of the cooperative activities of common wood sales, common forest management plans and accessibility plans. Thus an increase of forest group members also leads to an increase in their willingness to cooperate.

The seven recognised forest groups had 1,418 members on 1 February 2005 (Table 2). The forest area managed by forest group members (with or without assistance of the forest group) is 22% of the total forest area in the seven active working areas. The proportion of the owners in the total forest area is not known exactly but is certainly much lower; a rough estimate is 4.4%⁴. Thus owners of larger properties joined the forest group relatively early, at least in part because they are better informed and have a more direct and substantial return from the forest group services. The forest group *Noordoost-Limburg* has the highest participation

⁴ Step 1: Estimate the mean forest area of a forest owner (public or private) in Flanders: total forest area/number of forest owners = 146,000/80,000 = 1.8 ha/forest owner.

Step 2: Estimate the number of forest owners in the seven recognised forest groups: 57,778 ha/ 1.8 ha/forest owner = 32,099 owners.

Step 3: Estimate percentage of forest owners who are members of the forest group: 1418/32,099 = 4.4%.

rate (47% of the potential land of the forest group). Forests which are not managed by forest group members, are mostly not managed at all.

Table 2. Number of members, managed forest by forest group members (with or without assistance of the forest group) and total forest area in the seven recognised forest groups

Recognised forest groups	Number of members	Forest area under management (ha)	Total forest area in the working area (ha)
Kempense Heuvelrug (A4)	470	3,413	11,390
Noord-Hageland (B1)	154	471	8,096
West-Limburg (L1)	98	1,278	7,968
Noordoost-Limburg (L3)	157	4,437	9,452
Zuiderkempem (A5)	350	1,249	8,004
Oost-Vlaanderen Noord (O1)	118	911	7,694
Houtland (W1)	71	1,100	5,174
Total	1,418	12,859	57,778

Source: AMINAL (2005).

Involvement of private forest owners in forest management and production

The wood sales of the Flemish forest groups increased rapidly from 1,273 m³ in 1997 to 33,205 m³ in 2004 (Table 3). Much of this wood would not have been brought on the market without the stimulus of the forest group. This is confirmed by the wood-based industry (Agglo 2002). In 2004 the Forest service sold 90,000 m³ wood, other public owners 44,000 m³ and the forest groups 33,000 m³ (Van der Aa *et al.* 2005). Unfortunately no data are available on the other private forests. Wood sales are expected to increase further in the near future, when all 19 forest groups (as identified in Figure 1) are fully operational.

Table 3. The evolution of the wood sales of the forest groups between 1997 and 2004 (m³)

Forest group	Wood sales volume by year (m ³)							
	1997	1998	1999	2000	2001	2002	2003	2004
Kempense Heuvelrug (A4)	1,273	1,539	1,519	1,800	1,767	6,345	4,378	9,335
Noord-Hageland (B1)	0	0	0	1,896	1,085	1,267	693	0
West-Limburg (L1)	0	0	0	0	1,939	4,012	2,379	522
Noordoost-Limburg (L3)	0	0	0	0	3,970	5,410	4,787	1,850
Zuiderkempem (A5)	0	0	0	0	0	0	3,260	11,129
Oost-Vlaanderen Noord (O1)	0	0	0	0	0	0	1,562	1,718
Vlaamse Ardennen (O3)	0	0	0	0	0	0	0	3,421
Houtland (W1)	0	0	0	0	0	0	0	5,230
Total	1,273	1,539	1,519	3,696	8,761	1,7034	1,7059	33,205

Source: AMINAL (2005).

The forest area for which an accepted forest management plan has been drawn up increased from 119 ha in 1995 to 1,000 ha in 2004 (Figure 2). In Flanders there are two types of management plans: a *limited* plan compulsory for private forest properties larger than 5 ha and not situated in the Flemish Ecological Network (FEN) and a *comprehensive* plan compulsory for public owners and private forest properties larger than 5 ha which are situated in FEN. A limited forest management plan examines the technical and administrative aspects of the forest management, the inventory, the cutting scheme, the realisation of maintenance and improvement measures, the recreational, ecological, protection and landscape function, the selling of wood products, afforestation, reforestation and surveillance. A comprehensive management plan examines similar aspects, but the planning is based on more statistical data and is more detailed. The forest management plan will be accepted by the Forest Service when the planned forest management contributes to forest conservation and multifunctional forest management. The forests in FEN must also meet the criteria for sustainable forests set by the Flemish government (which are quite similar to the 10 FSC P&C).

In 1995, only 64 owners were involved in joint management plans; by 2004 the number had increased to 570. A forest managed plan is valid for 20 years. At present there is an accepted forest plan for an area of 2,378 ha. In the same period other private owners drew up a forest management plan for 15,935 ha. Nevertheless the forest group has an important role because it unites the very small forest owners. It is expected that the area with an accepted forest managed plan will increase further, particularly because forest management plans are one of the points of special interest of forest groups.

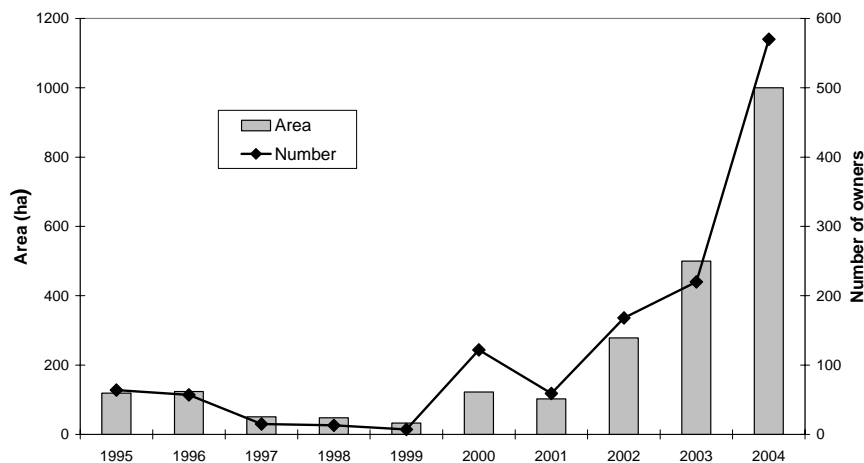


Figure 2. Evolution of the forest area with an accepted forest management plan in the seven independent associations without pursuit (yearly numbers)

Source: AMINAL (2005).

Increased area where forest recreation is possible

The forest groups have introduced an accessibility regulation for two forest complexes with participation by forest users and forest owners. The forests users are

holidaymakers (especially bikers and hikers), youth organisations and the general public. Forest owners and forest users evaluate these first experiences very positively. This topic will receive more attention in the near future.

Increase of the ecological value of forest

At present there are no private forests with FSC-certification in the Flemish forest groups. The drawing up of forest management plans following the *criteria of sustainable forest management* has only recently been commenced. Nevertheless, according to Van Gossum *et al.* (2005) a forest group in Flanders may contribute to realising a close-to-nature management, but this is only one aspect of sustainable forest management. The recreational and economical pillar should also be investigated. There is also an increase of the area where *small-scale measures* are executed (Table 4). Small-scale measures are activities which improve the ecological function on a small-scale basis. Examples are conversion from conifers to deciduous tree species, pest control of *Prunus serotina*, heath restoration, forest management for the conservation of rare species, and maintenance of small ponds. Furthermore, inventories are made of threatened organisms.

Table 4. The evolution of the small-scale measures (one activity/ha) of the forest groups between 1994 and 2004 (ha)

Small-scale measures (ha)	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
KempenseHeuvelrug (A4)	18	44	69	124	90	90	94	93	169	111	388
Noord-Hageland (B1)						20	35	15			
West-Limburg (W1)										7	23
Noordoost-Limburg (W3)											52
Zuiderkempen (A5)									109	250	180
Noorderkempen (A3)											27
Total	18	44	69	124	90	110	129	108	278	368	670

Source: AMINAL (2005).

Utility Analysis: Results of the Forest Owners' Inquiry

Since the participation of owners in the forest group funding program is voluntary, it is important to gain a clear picture of the owners' motivations for participating or not participating. The owners who *participate or have an interest to participate* (n = 183, group 1) were motivated because the forest group (1) provides information and increases knowledge (33%); (2) places the owner in a collective management plan (28%); (3) offers a platform for sharing management experiences (26%); and (4) is experienced as a united force against the government (13%).

The main reasons to remain outside a forest group for the owners who had *reservations to participate or were uninterested in participation* (n = 221, group 2) were that they desired to be independent from government and other private forest owners (21%), and they considered their forest to be too small (17%).

The socio-demographic differences between group 1 and 2 were investigated. Ages of interviewed owners were between 21 and 94 years, with 75% older than 49 years, 50% older than 59 years and 25% older than 68 years. Three quarters of the

owners were male. About 27% were members of a nature or hunting organisation (based on the interpretation of the interviewees themselves) and 53% stated that they spent little time on forest management. The two owner groups differ in education level, knowledge level, property size and time spent on forest management (Table 5). A higher proportion of the owners that joined the forest group (part of group 1) have a master degree; also, their knowledge level and property size is in general greater, and fewer spend no time on forest management.

Table 5. Socio-demographic difference between the two owner groups

Group class	Education (%)				Type (%)			Property size (%)			Knowledge (%)				Time spent (%)				Gender (% male)	Membership nature org. %)	Age (mean)
	Lower Secondary	Higher Secondary	Bachelor	Master	Coniferous	Broad-leaved	Mixed	Small (<2ha)	Medium (2-5 ha)	Large (>5ha)	Very low	Low	High	Very high	No time	Not much	Normal	Much			
1	15	25	28	31	39	48	13	29	42	29	17	26	27	31	11	39	23	27	79	31	58
2	29	29	20	21	36	45	19	49	34	17	30	23	27	20	21	34	19	26	75	24	59
Sig.	**	ns	ns	*	ns	ns	ns	***	ns	**	**	ns	ns	*	**	ns	ns	ns	ns	ns	ns

a. 1 denotes owners who already participated, or are interested in participating, in a forest group (n = 183) and 2 denotes owners who had reservations about, or were uninterested in, participation (n = 221).

ns = not significant, * = significant at the 5% level, ** = significant at the 1% level, *** = significant at the 0.1% level.

There are almost no differences in attitudes between the two groups towards forest policy (Table 6) and motivation for forest ownership (Table 7). The only clear difference is that owners, who already participate or are interested in participating, have a higher interest in the motivation ‘to establish a union with nature and to preserve a suitable biotope for plants and animals’.

In general Flemish forest owners are more interested in the primitivism⁵ and mysticism aspects. They find that the government restricts the owners in too many ways and does not respect their opinions. They also do not believe that owners place too much attention on economic outcomes, or receive enough financial support, or that forestry is profitable.

⁵ Pietarinen (1987) described the relationship between humans and nature by four value orientations: utilism (sometimes referred to as materialism), humanism, mysticism and primitivism. The motivations ‘to preserve a suitable biotope for plants and animals’ and ‘to conserve wilderness’ are primitivism aspects, and the motivation ‘to enjoy the beauty of nature’ is a mysticism aspect.

Table 6. Attitudes of private forest owners towards forest policy^a

Issue	Group 1 (n = 183)			Group 2 (n = 221)		
	Agree	Don't agree	No opinion	Agree	Don't agree	No opinion
Government puts too many restrictions on private forest owners	60.1	32.2	7.7	58.4	29.9	11.8
Government does not respect the opinion of the forest owner	63.9	22.4	13.7	59.3	24.9	15.8
Legislation regarding forests is too complex	55.7	15.3	29	48.9	13.6	37.6
Forest owners have too much administrative work	35	59.6	5.5	27.1	66.1	6.8
Forest policy pays too much attention to the ecological function of the forest	44.8	45.9	9.3	41.6	40.3	18.1
The inheritance taxes are too high	55.2	15.3	29.5	51.6	16.3	32.1
Forestry in Flanders is profitable	9.3	76.5	14.2	8.6	75.1	16.3
Forest policy pays too much attention to the economical function of the forest	18.6	64.5	16.9	19	57	24
Forest owners receive enough financial support	13.7	72.1	14.2	15.4	64.3	20.4

a. None of the comparisons between the two groups were statistically significant.

Table 7. Motivations for ownership of private forest owners

Importance degree (5: very to 1: not at all)	Group 1 (N = 183)					Group 2 (N = 221)					sig.
	5	4	3	2	1	5	4	3	2	1	
Recreation with family and friends (%)	25.6	16.1	10.6	8.9	38.9	28.2	14.5	7.7	7.7	40	ns
To enjoy the beauty of nature (%)	46.1	21.7	11.7	6.1	14.4	40.9	20.5	9.1	7.3	20.9	ns
To establish a union with nature (%)	44.4	20.6	14.4	6.1	14.4	37.7	17.3	11.4	9.1	22.7	*
To preserve a suitable biotope for plants and animals (%)	38.3	30	8.3	6.7	16.7	34.5	19.5	12.7	9	22.6	*
To conserve wilderness (%)	46.7	23.9	13.3	3.9	12.2	45.2	14	9.5	8.1	20.8	ns
As a financial investment (%)	16.4	13.3	8.3	11.6	50.3	11.8	18.2	6.8	9.1	52.7	ns

ns = not significant and * = significant at the 5% level.

Implementation Analysis

Results from expert questionnaires (1 policy-maker and 2 persons involved in program implementation) and evaluation studies (Dumortier *et al.* 2003, Van der Aa *et al.* 2005) were used to explore possible reasons for the success of this program and to determine possible impeding factors for implementation in the future. One of the important success factors of the Flemish forest groups was that the group was developed on a local level (bottom-up). The first forest group was initiated by the province administration of Antwerp and the second by private forest owners. In

1999 the Flemish forest services and the province administrations promoted the idea in the whole Flemish region, giving it a legal base and funding.

An initial impeding factor is the inconsistency between various policy aims when the legislation is strictly enforced. For example, forest owners located in the Flemish Ecological Network must draw up a comprehensive management plan as soon as possible. However, another aim is sensitisation and responsibility, which can only be realised in a wide time frame and step-by-step. Associated with this problem is the need for a longer time scale to realise some legal obligations.

A second possible impeding factor is the imbalance of rights and duties of the participating owners. Owners will only participate in a funding program when the program makes them better off (Mendes 2004). *Better off* is not only based on economic criteria, but also on aspects such as belonging to a group, sharing information, and obtaining information and advice. Thus the collaboration between forest owners must be compensated by financial gains such as lower-cost forest work, administrative assistance, higher wood prices, higher quality of the forest work and group dynamics.

A third possible impeding factor is that the various stakeholders (private forest owners, forest administration, nature administration, municipalities, leisure organisations, nature organisations, youth organisations and schools) do not arrive at compromises. There is no agreed vision of what the forest group must deliver and what its targets are in the field. Through the success of the forest group many stakeholders want to use this instrument to realise their specific targets, without adjusting these. The forest group should be a forum to discuss these visions, but can only be successful when all stakeholders are prepared to make compromises.

DISCUSSION

The fact that owners of larger properties join forest groups relatively early is a general trend in France, Belgium and the Netherlands. In France the number of members increased from 40,000 (0.96% of the number of private forest owners) in 1990 to 70,000 (1.67%) in 1999 (UCFF 2004). The forest area in the French forest groups increased from 1.2 M ha in 1990 to 1.6 M ha in 1999 (UCFF 2004). This corresponds with an increase in the total private forest area from 11.48% to 15.30%. The mean private forest area in a forest group decreased from 30 ha in 1990 to 23 ha in 1999. In France a forest group is thus also in the first phase more attractive for the large owners than for the smaller ones. The same evolution is apparent in the Netherlands. The number of members increased from 300 in 1990 to 1,118 in 2004; the forest area in the forest groups increased more slowly from 120,000 ha in 1993 to 165,180 ha in 2004 (Unie van Bosgroepen 2004). The data of the Netherlands must be interpreted with caution because in the earlier years some small cooperatives of very small members (25 up to 150 members) joined the forest group and were counted as one member.

The participation rate in the forest group Noordoost-Limburg (W3) is relatively high in comparison with other countries with a longer tradition of forest cooperatives. For example, the participation rate is 75% in Finland (Koistinen 1998), 50% in Sweden (Kittredge 2003), two-thirds of potential owners and three-quarters

of potential land in South Korea (Kittredge 2005), and 24% of all potential owners and 68% of potential land in Bavaria in Germany (Beck and Spiegelhoff 1997).

Bolen (1996) and Velema (1996) confirmed the potential of forest groups to promote wood trade. Velema (1996) launched the idea to establish a roundwood auction in the Netherlands. This auction became a reality in 1997 and afterwards became an annual event. Kittredge (2004) confirmed the importance of forest groups to deliver professional services – including the coordination and guidance of joint forest management plans – and that a forest group could contribute to improvement in recreational planning. Williams and Ellefson (1997) confirmed that forest groups can be used to protect endangered plant and animal species.

The concern of the NIPF owners that forest groups result in a loss of control over their land and thus a loss of independence has been reported for a variety of ecosystem management and cost-sharing programs (Bliss *et al.* 1994, Brunson *et al.* 1996, Campbell and Kittredge 1996, Cocklin and Doorman 1994, Peterson and Horton 1995 and Washburn 1996). Therefore, the forest group funding program is not attractive to all private forest owners, as confirmed by Kittredge (2005).

The results cannot be generalised for Belgium, because the Walloon region is organised totally differently, and has a different forest structure (in terms of owners and area) and a different tradition.

To gain a better insight into the pros and cons of forest groups and their regional impact, future evaluations can be improved by in-depth interviews with forest owners (members and non-members), with co-ordinators, and with the wood-based industry and other target groups such as nature organisations.

CONCLUSION

The Flemish forest groups have been developed as a reaction to a threat (the hyper-fragmentation of forest and forest parcels). There was an organisational jump-start (governmental support), and the forest groups are locally oriented. However, the forest group will not be the universal solution to introduce multifunctional forest management by all forest owners. Another important success factor is the bottom-up development of the forest group, which results in broad public support of this instrument.

It is to be expected that the forest groups will achieve their diverse policy targets in the future. Most indicators have evolved in a favourable direction. The wood sales, area of the forest management plan, number of members, area under management and also area with small-scale ecological measures have been increasing between 1995 and 2004. For some indicators – including FSC certification and area managed according to sustainable forest management – it is too early to make a judgment.

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REFERENCES

- AMINAL: Administratie Milieu-, Natuur-, Land- en Waterbeheer (Environment, Nature, Land- and Water Management Administration), Forest and Green Area Division (2005), Brussels.
- Barden, C.J., Jones, S.B. and Biles, L.E. (1996), 'Extension forestry education: Reaching the people who make decisions', *Journal of Forestry*, 94(3): 31-35.
- Barten, P.K., Damery, D., Catanzaro, P., Fish, J., Campbell, S., Fabos, A. and Fish, L. (2001), 'Massachusetts family forest: birth of a landowner cooperative', *Journal of Forestry*, 99(3): 23-30.
- Beck, R. and Spiegelhoff, J. (1997), *Forest Owners Association in Bavaria and Extension*, Faculty of Forest Science, University of Munich, Freising.
- Bliss, J.C., Brooks, R.T. and Larsen, M.D. (1994), *Attitudes in the Tennessee Valley Region toward Forest Practices and Policies*, Gallup Organisation, Auburn.
- Bolen, R.W. (1996), 'The Western Upper Peninsula forest improvement district', in M.J. Baughman and N. Goodman (eds), *Proceedings of Symposium on Non-industrial Private Forests: Learning from the Past, Prospects for the Future*, Washington, DC, 18-20 February 1996, Minnesota Extension Service, University of Minnesota, Saint-Paul, pp. 411-416.
- Brunson, M.W., Yarrow, D.T., Roberts, S.D., Guynn, D.C. Jr and Kuhns, M.R. (1996), 'Non-industrial private forest owners and ecosystem management: Can they work together?', *Journal of Forestry*, 94(6): 14-21.
- Campbell, S.M. and Kittredge, D.B. (1996), 'Ecosystem management on multiple NIPF ownership', *Journal of Forestry*, 94(2): 24-29.
- Cocklin, C. and Doorman, P. (1994), 'Ecosystem protection and management in New Zealand: A private land perspective', *Applied Geography*, 14(3): 264-281.
- Dumortier, M., Van der Aa, B., Leyman, A., Van Gossum, P. and Serbruyns, I. (2003), 'Bosbeleid', in M. Dumortier, L. De Bruyn, J. Peymen, A. Schneiders, T. Van Daele, G. Weyemberg, D. Van Straaten and E. Kuijken (eds), *Natuurrapport 2003. Toestand van de Natuur in Vlaanderen: Cijfers voor het Beleid*, Mededelingen van het Instituut voor Natuurbehoud, no. 21, Brussel, pp. 244-256. [In Dutch].
- Erickson, D.L., Ryan, R.L. and De Young, R. (2002), 'Woodlots in the rural landscape: landowner motivations and management attitudes in a Michigan (USA) case study', *Landscape and Urban Planning*, 58(2-4): 101-112.
- EU-DG Budget (1997), *Evaluating EU Expenditure Programs – A Guide to Intermediate and Ex Post Evaluation*, <http://europe.eu.int/comm/budget/evaluation/guide/guide00en.htm>, accessed 30 April 2004.
- EU-DG Agriculture (1999), *Evaluation of Rural Development Programs 2000-2006 Supported from the European Agriculture Guidance and Guarantee Fund – Guidelines*, http://europe.eu.int/comm/agriculture/rur/eval/guide/2000_en.pdf, accessed 30 April 2004.
- FAO/ECE/ILO Committee on Forest Technology, Management and Training (2000), *Public Participation in Forestry in Europe and North America*, Sectoral Activities Department, International Labour office, Geneva, Switzerland.
- Hiedanpää, J. (2002), 'European-wide conservation versus local well-being: the reception of the Natura 2000 Reserve Network in Karvia, SW Finland', *Landscape and Urban Planning*, 61(2-4), 113-123.
- Jones, S.B., Luloff, A.E. and Finley, J.C. (1995), 'Another look at NIPF's: facing our myths', *Journal of Forestry*, 93(9): 41-44.
- Kaczmarek, K. and Ottitsch, A. (2004), 'Program evaluation in public sector management practice', in Buttoud, G., Solberg, B., Tikkanen, I. and Pajari, B. (eds), *The Evaluation of Forest Policies and Programs*, EFI Proceedings, 52: 17-28.

- Kaliszewski, A. and Zyrina, O. (2003), Guidelines for Ecological Effects Evaluation, EFFE-project, internal document, (not published).
- Kittredge, D.B. (2003), 'Private forestland owners in Sweden – Large-scale cooperation in action', *Journal of Forestry*, 101(2): 41-46.
- Kittredge, D.B. (2005), 'The cooperation of private forest owners on scales larger than one individual property: international examples and potential application in the United States', *Forest Policy and Economics*, 7(4): 671-688.
- Klosowski, R., Stevens, T., Kittredge, D. and Dennis, D. (2001), 'Economic incentives for coordinated management of forest land: a case study of southern New England', *Forest Policy and Economics*, 2(1): 29-38.
- Konijnendijk, C.C. (1999), 'Urban forestry: comparative analysis of policies and concepts in Europe - Contemporary urban forest policy-making in selected cities and countries of Europe', EFI Working Paper 20, European Forest Institute, Joensuu, Finland.
- Koistinen, A. (1998), 'Developing forestry cooperatives at the village level in Finland', *Työtehoseuran Julkaisuja*, 365: 86-86.
- MCPFE (1998), 'Annex 1 of the Resolution L2: Pan-European criteria and indicators for sustainable forest management', *Third Ministerial Conference on the Protection of Forests in Europe*, 2-4 June 1998, Lisbon, *Ministerial Conference on the Protection of Forests in Europe*, Liaison Unit Vienna, Vienna.
- MCPFE (2005), *MCPFE Resolutions*, <http://www.mcpfe.org/resolutions/>, accessed 30 April 2004.
- Mendes, A.M.S.C. (1998), 'Forest owners' association as a case of joint production of public goods and private services: A game theoretical approach', in A. Yoshimoto, and K. Yukutake (eds), *Proceedings of the international symposium on global concerns for forest resource utilisation – Sustainable Use and Management*, 5-8 October 1998, Seagaia, Japan, pp. 186-196.
- Mendes, A.M.S.C. (2004), 'Implementation analysis of National Forest Programs', in P. Glück (ed.), *Making NFPs Work: Procedural Aspects and Supporting Factors*, Publication Series of the Institute of Forest Sector Policy and Economics, University of Natural Resources and Applied Sciences - Vol. 48, Vienna (forthcoming).
- Nagarajan N. and Vanheukelen M. (1997), *Evaluating EU Expenditure Programmes: A Guide (Ex Post and Intermediate Evaluation)*, European Commission, Directorate-General XIX – Budgets, First edition, http://europa.eu.int/comm/budget/evaluation/pdf/guide_en.pdf, accessed 30 April 2004.
- Peterson, T.R. and Horton, C.C. (1995), 'Rooted in the soil: How understanding the perspectives of landowners can enhance the management of environmental disputes', *Quarterly Journal of Speech*, 81(2): 139-166.
- Pietarinen, J. (1987), Ihminen ja metsä: neljä perusasennetta, *Silva Fennica*, 21: 323-331. [In Finnish with English summary].
- Rickenbach, M.G., Kittredge, D.B., Dennis, D. and Stevens, T. (1998), 'Ecosystem management capturing the concept for woodland owners', *Journal of Forestry*, 96(4), 18-24.
- Rosner, B., (2000), *Fundamentals of Biostatistics*, Brooks/Cole, Pacific Grove, USA.
- Sampson, N. and De Coster, L. (2000), 'Forest fragmentation: Implications for sustainable private forests', *Journal of Forestry*, 98(3): 4-8.
- Serbruyns, I. and Luyssaert, S. (in process), 'Acceptance of sticks, carrots and sermons as policy instruments for directing private forest management', *Forest Policy and Economics*.
- Silvin, M. (2004), Union de la Coopération Forestière Française (UCFF), personal communication.
- Soneryd, L. and Weldon, S. (2003), 'Noise and newts: public engagement in the UK and Sweden', *Environmental Impact Assessment Review*, 23(1): 17-37.
- Stevens, T.H., Dennis, D., Kittredge, D. and Rickenbach, M., (1999), 'Attitudes and preferences toward cooperative agreements for management of private forestlands in north-eastern United States', *Journal of Environmental Management*, 55(2): 81-90.
- Tyson, C.B., Broderick, S.H. and Snyder, L.B. (1998), 'A social marketing approach to landowner education', *Journal of Forestry*, 96(2): 34-40.
- Wierbos, B. (2002), Agglo NV, personal communication on symposium 'De (on)zin van houtproductie in Vlaanderen' Antwerp, Belgium. [In Dutch].
- Willems, A. (2004), Director, Unie der Bosgroepen, personal communication.

- United Nations (1992), *Convention on Biological Diversity*, United Nations Conference on Environment and Development, Rio de Janeiro, 3 – 4 June 1992, United Nations, New York.
- Van der Aa, B., De Maeyer, W. and Dumortier, M. (2005), 'Bosbouw'. in: M. Dumortier, L. De Bruyn, M. Hens, M. Peymen, A. Schneiders, T. Van Daele, W. Van Reeth, G. Weyemberg and E. Kuijken (eds), *Natuurrapport 2005. Toestand van de Natuur in Vlaanderen: Cijfers voor het Beleid*, Mededelingen van het Instituut voor Natuurbehoud, nr. 24, Brussel, pp. 268-277, (In Dutch).
- Van Gossum, P., Luyssaert, S., Serbruyns, I. and Mortier, F. (2005), 'Forest groups as support to private owners in developing close-to-nature management', *Forest Policy and Economics*, 7(4): 589-601.
- Vedung, E. (1998), 'Policy Instruments: typologies and theories', in M.L. Bemelmand-Videc, R.C. Rist and E. Vedung (eds), *Carrots, Sticks, and Sermons: Policy Instruments and Their Evaluation*, Transaction Publisher, New Brunswick, NJ, pp. 21-58.
- Velema, A. (1996), 'In oprichting: een jaarlijkse kwaliteitshoutveiling in Nederland', *Nederlands Bosbouw tijdschrift*, 68: 59-60. [In Dutch].
- Washburn, M.P. (1996), 'Cross boundary management on non-industrial private forests in Pennsylvania: a vision for the future', in M.J. Baughman and N. Goodman (eds), *Proceedings: Symposium on Non-industrial Private Forests: Learning from the Past, Prospects for the Future*, Washington, DC, 18-20 February 1996, Minnesota Extension Service, University of Minnesota, Saint-Paul, MN, pp. 63-68.
- Williams, D.R. and Ellefson, P.V. (1997), 'Going into partnership to manage a landscape', *Journal of Forestry*, 95(5): 29-33.
- Zanatta, Y., Mikkola, E. and Engels, M. (2000), *Statistics in Focus*, Forest and Environment, Eurostat, Luxemburg.